

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-31. (Canceled)

32. (New) A storage system, comprising:

a first storage device coupled to an information processing device and having a first controller and a plurality of first disk drives;

said first controller controlling to store data received from said information processing device in said first disk drives and receiving a first command and being able to transfer said first command to a Nth ($N =$ positive integer of no fewer than 3) storage device without transferring said first command to a second storage device, said first command being sent from said information processing device to said Nth storage device;

said second storage device being coupled to said first storage device and being nearer to said first storage device than said Nth storage device and having a second controller and a plurality of second disk drives;

said second controller controlling to store data in said second disk drives and being able to receive said first command from said first storage device and being able to transfer said first command to said Nth storage device;

said Nth storage device being coupled to said second storage device or to a (N-1)th storage device and having a Nth controller and a plurality of Nth disk drives; and

said Nth controller controlling to store data in said Nth disk drives and receiving said first command from said first storage device and executing said first command.

33. (New) A storage system according to claim 32, wherein:

said first storage device or said second storage device or said (N-1)th storage device is coupled to information of one or more storage devices.

34. (New) A storage system according to claim 32, wherein:

said first storage device is coupled to information of one or more storage devices; and

said first storage device transfers said first command to said Nth storage device based on said information.

35. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume.

36. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume and a second logical volume in a Nth storage device.

37. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume in said first storage device or said (N-1)th storage device.

38. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume;

said change of relationship between said first logical volume and said second logical volume is to ~~to~~ a change from a first condition to a second condition;

said first condition is that said first logical volume does not correspond to said second logical volume; and

said second condition is that said first logical volume corresponds to said second logical volume.

39. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to form a pair of said first logical volume as a primary volume and said second logical volume as a secondary volume storing data that corresponds to data stored in said primary volume.

40. (New) A storage system according to claim 32, wherein:
said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and
said change of relationship between said first logical volume and said second logical volume is to form a pair of said second logical volume as a primary volume and said first logical volume as a secondary volume storing data that corresponds to data stored in said primary volume.

41. (New) A storage system according to claim 32, wherein:
said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and
said change of relationship between said first logical volume and said second logical volume is to change to a state of copying data stored in said first logical volume as a primary volume to said second logical volume as a secondary volume so that data stored in said first logical volume conforms to data stored in said second logical volume.

42. (New) A storage system according to claim 32, wherein:
said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and
said change of relationship between said first logical volume and said second logical volume is to change to a state of copying data stored in said second logical volume as a primary volume to said first logical volume as a secondary volume so that data stored in said second logical volume conforms to data stored in said first logical volume.

43. (New) A storage system according to claim 32, wherein:
said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and
said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data in relation to said first logical volume as a primary volume in said second logical volume as a secondary volume.

44. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data in relation to said second logical volume as a primary volume in said first logical volume as a secondary volume.

45. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data sent from said information processing device in said first logical volume as a primary volume and not to store data in relation to said first logical volume in said second logical volume as a secondary volume.

46. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data sent from said information processing device in said second logical volume as a primary volume and not to store data in relation to said second logical volume in said first logical volume as a secondary volume.

47. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of restoring data from said first logical volume to said second logical volume.

48. (New) A storage system according to claim 32, wherein:

said first command is used to request a change of relationship between a first logical volume in a Nth storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of copying data in relation to said first logical volume in said second logical volume.

49. (New) A storage system according to claim 32, wherein:

said first controller or a (N-1)th controller transfers said first command to said Nth storage device based on contents of said first command.

50. (New) A storage system according to claim 32, wherein:

said first controller provides a third logical volume to said information processing device, said third logical volume being used by said information processing device to control said first storage device; and

said first controller transfers said first command to said second storage device based on contents of said first command sent from said information processing device to said third logical volume.

51. (New) A storage system according to claim 32, wherein:

said first controller provides a fourth logical volume to said information processing device, said fourth logical volume corresponding to a fifth logical volume in said second storage device; and

said first controller transfers said first command to said fifth logical volume if said fourth logical volume is addressed in said first command sent from said information processing device.

52. (New) A storage system according to claim 32, wherein:

said first command has information comprising an identification number of said Nth storage device.

53. (New) A storage system according to claim 32, wherein:

said first controller receives a second command, said second command being used to request a condition of a first logical volume from said information processing device to said Nth storage device, and can transfer said second command to said

Nth storage device without transferring said second command to said second storage device; and

said Nth controller receives said second command from said first storage device or said (N-1)th storage device and replies with a status of said first logical volume to said information processing device via said first storage device or said (N-1)th storage device in response to said second command.

54. (New) A storage system, comprising:

a first storage device coupled to an information processing device and having a first controller and a plurality of first disk drives;

said first controller controlling to store data in said first disk drives and receiving a first command and being able to transfer said first command to a third storage device without transferring said first command to a second storage device, said first command being sent from said information processing device to said third storage device;

said second storage device being coupled to said first storage device and being nearer to said first storage device than to said third storage device and having a second controller and a plurality of second disk drives;

said second controller controlling to store data in said second disk drives and being able to receive said first command from said first storage device and being able to transfer said first command to said third storage device;

said third storage device being coupled to said second storage device and having a third controller and a plurality of third disk drives; and

said third controller controlling to store data in said third disk drives and receiving said first command from said first storage device and executing said first command.

55. (New) A storage system according to claim 54, wherein:

said first storage device is coupled to information of one or more storage devices.

56. (New) A storage system according to claim 54, wherein:

said first storage device is coupled to information of one or more storage devices; and

said first storage device transfers said first command to said third storage device based on said information.

57. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume.

58. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume and a second logical volume in a third storage device.

59. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume in said first storage device or said second storage device.

60. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume;

said change of relationship between said first logical volume and said second logical volume is to change from a first condition to a second condition;

said first condition is that said first logical volume does not correspond to said second logical volume; and

said second condition is that said first logical volume corresponds to said second logical volume.

61. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to form a pair of said first logical volume as a primary volume and said second logical volume as a secondary volume storing data that corresponds to data stored in said primary volume.

62. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to form a pair of said second logical volume as a primary volume and with said first logical volume as a secondary volume storing data that corresponds to data stored in said primary volume.

63. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of copying data stored in said first logical volume as a primary volume to said second logical volume as a secondary volume so that data stored in said first logical volume conforms to data stored in said second logical volume.

64. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of copying data stored in said second logical volume as a primary volume to said first logical volume as a secondary volume so that data stored in said second logical volume conforms to data stored in said first logical volume.

65. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data in relation to said first logical volume as a primary volume in said second logical volume as a secondary volume.

66. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data in relation to said second logical volume as a primary volume in said first logical volume as a secondary volume.

67. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data in said first logical volume as a primary volume and not to store data in relation to said first logical volume in said second logical volume as a secondary volume.

68. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of storing data in said second logical volume as a primary volume and not to store data in relation to said second logical volume in said first logical volume as a secondary volume.

69. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of restoring data from said first logical volume to said second logical volume.

70. (New) A storage system according to claim 54, wherein:

said first command is used to request a change of relationship between a first logical volume in a third storage device and a second logical volume; and

said change of relationship between said first logical volume and said second logical volume is to change to a state of copying data in relation to said first logical volume in said second logical volume.

71.(New) A storage system according to claim 54, wherein:

said first controller transfers said first command to said third storage device based on contents of said first command.

72. (New) A storage system according to claim 54, wherein:

said first controller provides a third logical volume to said information processing device, said third logical volume being used by said information processing device to control said first storage device; and

said first controller transfers said first command to said second storage device based on contents of said first command sent from said information processing device to said third logical volume.

73. (New) A storage system according to claim 54, wherein:

said first controller provides a fourth logical volume to said information processing device, said fourth logical volume corresponding to a fifth logical volume in said second storage device; and

said first controller transfers said first command to said fifth logical volume if said fourth logical volume is addressed in said first command sent from said information processing device.

74. (New) A storage system according to claim 54, wherein:

said first command has information comprising an identification number of said third storage device.

75. (New) A storage system according to claim 54, wherein:

said first controller receives a second command, said second command being used to request a condition of a first logical volume from said information processing device to said third storage device, and can transfer said second command to said third storage device without transferring said second command to said second storage device; and

said third controller receives said second command from said first storage device and replies with a status of said first logical volume to said information processing device via said first storage device in response to said second command..